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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/016,514	12/17/2001	Mark R. Easter	110938-00132	8304

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EXAMINER

MAYO III, WILLIAM H

ART UNIT	PAPER NUMBER
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2831

DATE MAILED: 03/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/016,514

Applicant(s)

EASTER, MARK R.

Examiner

William H. Mayo III

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 17-19 is/are rejected.
- 7) ☒ Claim(s) 15 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

## DETAILED ACTION

### *Specification*

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because it contains the terms "comprises" which improper language for the abstract. Correction is required. See MPEP § 608.01(b).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-10, 12-14, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reid et al (Pat Num 6,086,792, herein referred to as Reid). Reid discloses a semi-composition for useful in the preparation of power cable semi-

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conducting shields (Col 1, lines 4-5). Specifically, with respect to claim 1, Reid discloses a semi conducting material comprising about 55 to about 75 percent of a base polymer (i.e. 5-80 percent, Col 4, lines 20-27), about 25 to 45 percent by weight of carbon black (25-45 percent) having a particle size from about at least 29nm (Col 2, line 44), an Iodine number of from about 30g/kg to about 300g/kg (i.e. 300 mg/g, Col 2, lines 53-54), and a DBP number from about 90 cm<sup>3</sup>/100g-170 cm<sup>3</sup>/100g (i.e. 80-300, Col 2, lines 52-54). With respect to claim 2, Reid discloses that the particle size is at least 29nm (Col 2, line 44). With respect to 3, Reid discloses that the Iodine number of from about 125g/kg to about 150g/kg (i.e. 300 mg/g, Col 2, lines 53-54). With respect to claim 4, Reid discloses that the tint strength is at least about 95% (i.e. 100 %, Col 2, line 45). With respect to claim 5, Reid discloses that the particle size is at least 29nm (Col 2, line 44) and the Iodine number of from about 125g/kg to about 150g/kg (i.e. 300 mg/g, Col 2, lines 53-54). With respect to claim 6, Reid discloses that the about composition has about 30 to 40 percent by weight of carbon black (25-45 percent). With respect to claim 7, Reid discloses a semi conducting material comprising about 60 to about 70 percent of a base polymer (i.e. 5-80 percent, Col 4, lines 20-27). With respect to claim 8, Reid discloses that the base polymer may be made of copolymers of ethylene and unsaturated esters (Col 4, lines 20-26), copolymers of ethylene and one or more  $\alpha$ -olefins having 3 to 6 atoms (i.e. 3 to 20 atoms, Col 5, lines 1-5), and EPR or EDPM rubbers (Col 4, lines 65-68). With respect to claim 9, Reid discloses that the base polymer may be ethylene vinyl acetate (Col 4, lines 42-44). With respect to claim 10, Reid discloses that the ethylene vinyl acetate has vinyl acetate content from about

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18-20 percent (i.e. 10 to 40 percent, Col 4, lines 27-28). With respect to claim 12, Reid discloses a semi conducting material comprising about 55 to about 75 percent of a base polymer (i.e. 5-80 percent, Col 4, lines 20-27), about 25 to 45 percent by weight of carbon black (25-45 percent) having a particle size from about at least 29nm (Col 3, lines 29-35), an Iodine number of from about 30g/kg to about 300g/kg (i.e. 300 mg/g, Col 2, lines 53-54), and a DBP number from about 90 cm<sup>3</sup>/100g-170 cm<sup>3</sup>/100g (i.e. 80-300, Col 2, lines 52-54). With respect to 13, Reid discloses that the Iodine number of from about 125g/kg to about 150g/kg (i.e. 300 mg/g, Col 2, lines 53-54). With respect to claim 14, Reid discloses that the tint strength is at least about 95% (i.e. 100 %, Col 2, line 45). With respect to claim 17, Reid discloses a method of making a semi conducting composition comprising blending about 55 to about 75 percent of a base polymer (i.e. 5-80 percent, Col 4, lines 20-27) with about 25 to 45 percent by weight of carbon black (25-45 percent) having a particle size from about at least 29nm (Col 3, lines 29-35), an Iodine number of from about 30g/kg to about 300g/kg (i.e. 300 mg/g, Col 2, lines 53-54), and a DBP number from about 90 cm<sup>3</sup>/100g-170 cm<sup>3</sup>/100g (i.e. 80-300, Col 2, lines 52-54). With respect to claim 18, Reid discloses a method of making a semi conducting composition comprising carbon black (25-45 percent) having a particle size from about at least 29nm (Col 3, lines 29-35). With respect to claim 19, Reid discloses a method of making wherein the tint strength is at least about 95% (i.e. 100 %, Col 2, line 45). ). With respect to claim 20, Reid discloses a method of making a semi conducting composition wherein the Iodine number of from about 30g/kg to about 300g/kg (i.e. 300 mg/g, Col 2, lines 53-54).

However, Reid doesn't necessarily disclose the semi conductive material being used in a cable having a conductive core and a semi conducting layer surrounding the conductive core (claim 1), wherein particle size of the carbon black is between 15-22nm, nor the iodine number being from 115-200mg/g (claims 1, 12, and 17), nor the particle size being 18-21nm (claim 2), nor the iodine number being about 120-150mg/g (claims 3 & 13), nor the particle size is about 20nm and the iodine number being 125-150 mg/g (claim 5).

Reid teaches that semiconductor materials are commonly utilized in power cables comprising a cable core that is surrounded by first layer of semi conducting shield, an insulating layer and a second layer of semi conducting shield (Col 1, lines 8-14). With respect to claims 1-2, 12, & 17-18, Reid also teaches that carbon black having particles sizes of less than 22nm are commonly utilized as semi conducting materials (Col 3, lines 29-40).

With respect to claims 1-2, 5, 12, and 17-18, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the carbon black material of Reid to comprise the semi conducting material being utilized in a cable core having a carbon black particle size of less than 22nm since, Reid teaches such a configuration is well known in the art of cables (Col 1 & 3, lines 8-14 & 29-40).

With respect to claims 3 & 13, it would have been an obvious matter of design choice to modify the carbon black of Reid to comprise an iodine number being about 120-150mg/g, since it has been held that where the general conditions of a claim are

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disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reid (Pat Num 6,086,792) in view of Hendewerk et al (Pat Num 6,270,856, herein referred to as Hendewerk). Reid discloses a semi-composition for useful in the preparation of power cable semi-conducting shields (Col 1, lines 4-5) as disclosed above with respect to claim 1 above.

However, Reid doesn't necessarily disclose the base polymer being ethylene/l-butene having a density of about 0.85-0.95 g/cm<sup>3</sup> (claim 11).

Hendewerk teaches a polymeric material for usage with power cables (Col 1, lines 17-20). Specifically, with respect to claim 11, Hendewerk teaches cable (Fig 3) comprising a polymeric material that may be semi conducting material (Col 9, lines 54-67) having a base polymer of ethylene/l-butene (Col 6, lines 25-36) and having a density of about 0.85-0.95 g/cm<sup>3</sup> (Cols 6-7, lines 66-67 & 1-3) that exhibits improved resistance to treeing and other improved physical and mechanical properties (Col 3, lines 35-40).

With respect to claim 11, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the base polymer of Reid to comprise the material configuration as taught by Hendewerk because Hendewerk teaches that such a configuration provides a cable that exhibits improved resistance to treeing and other improved physical and mechanical properties (Col 3, lines 35-40).

***Allowable Subject Matter***

6. Claims 15-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: This invention deals with a semi conductive shield having an accelerated cable life test (ACLT) Weibull Beta value of 1.5 or more (claim 15), specifically 3.0 or more (claim 16). The above stated claim limitations, in combination with other claimed limitations, is not taught or suggested by the prior art of record.

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. They are Ishikawa et al (JP Pat Num 3-173011), Ginger et al (EP Pat Num 0 962 944 A1), Spendal et al (Pat Num 5,246,783), Wahl (Pat Num 3,935,042), Kakizaki et al (Pat Num 4,412,938), Hvizd, JR et al (Pat Num 4,361,723), Penneck et al (Pat Num 4,470,898), Dragonvagen et al (WO Pat Num 99-20690), Gustafsson et al (Pat Num 6,416,860 & 6,165,387), Kutsuwa et al (Pat Num 4,526,707), Peruzzotti et al (Pat Num 6,521,695), Kutsuwa et al (Pat Num 4,588,855), Ribarits (WO Pat Num 98/14516), all of which disclose power cables having carbon black.



***Communication***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Mayo III whose telephone number is (703) 306-9061. The examiner can normally be reached on M-F 8:30am-6:00 pm (alternate Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on (703) 308-3682. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3432 for regular communications and (703) 305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

A handwritten signature in black ink, appearing to read 'William H. Mayo III', with a stylized flourish at the end.

WHM III  
March 8, 2003